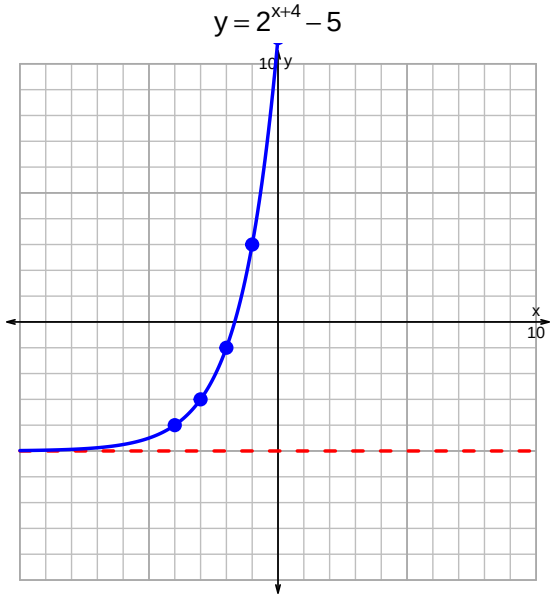
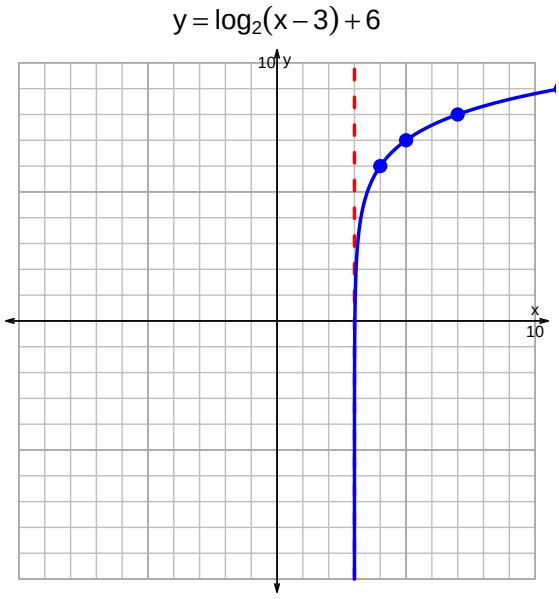
Name: Date:

S18QUIZ: EXP LOG (SLTN v221)

1. Graph $y = 2^{x+4} - 5$ and $y = \log_2(x-3) + 6$ on the grids below. Also, draw any asymptotes with dotted lines.





2. Write (but do not evaluate) the solution to the equation below by writing a logarithmic expression.

$$-11 = \left(\frac{-4}{7}\right) \cdot 2^{3t/5}$$

Divide both sides by $\frac{-4}{7}$.

$$\frac{11 \cdot 7}{4} = 2^{3t/5}$$

Take log, base 2, of both sides.

$$\log_2\left(\frac{11 \cdot 7}{4}\right) = \frac{3t}{5}$$

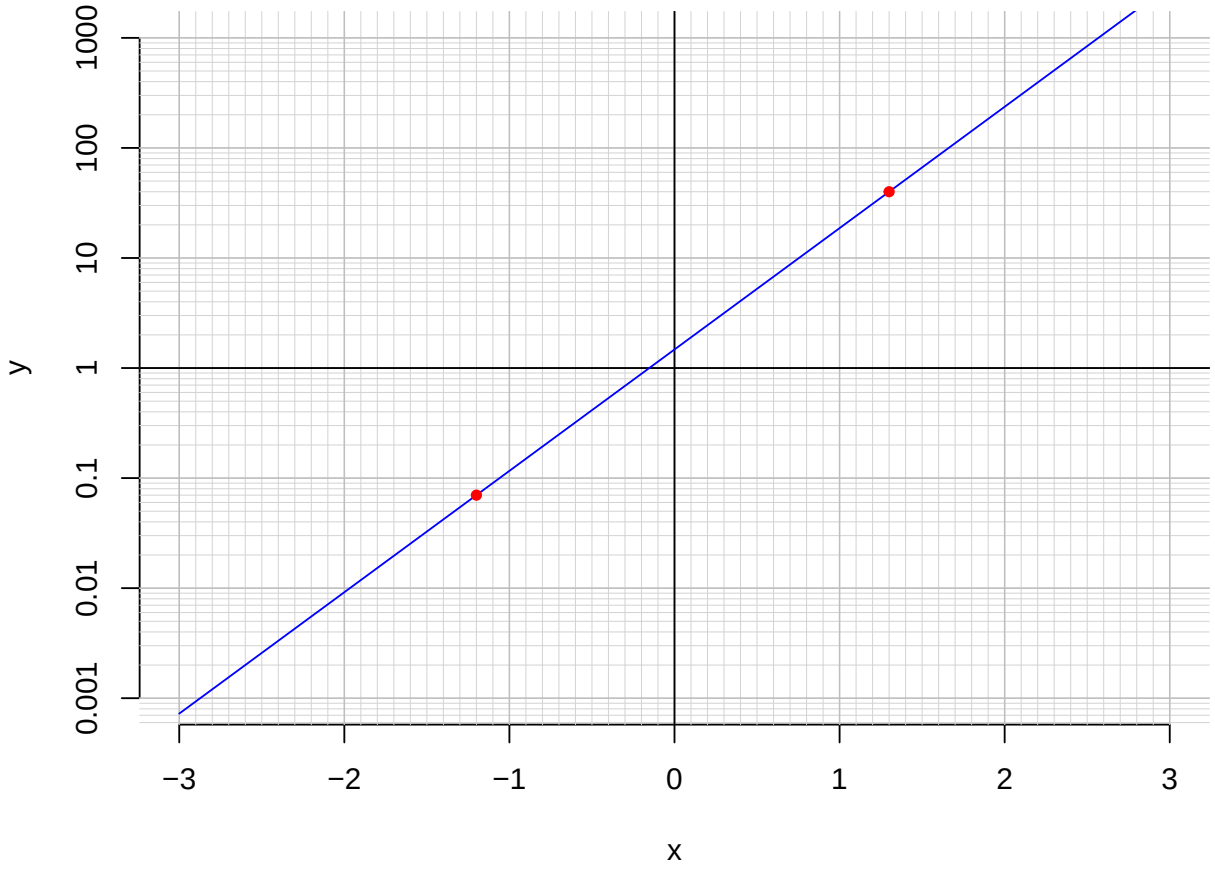
Divide both sides by $\frac{3}{5}$.

$$\frac{5}{3} \cdot \log_2\left(\frac{11 \cdot 7}{4}\right) = t$$

Switch sides.

$$t = \frac{5}{3} \cdot \log_2\left(\frac{11 \cdot 7}{4}\right)$$

3. An exponential function $f(x) = 1.47 \cdot e^{2.54x}$ is graphed below on a semi-log plot.



a. Using the plot above, evaluate $f(-1.2)$.

$$f(-1.2) = 0.07$$

b. Express $f^{-1}(x)$, the inverse of f.

$$f^{-1}(x) = \frac{1}{2.54} \cdot \ln\left(\frac{x}{1.47}\right)$$

c. Using the plot above, evaluate $f^{-1}(40)$.

$$f^{-1}(40) = 1.3$$